

REMARKS/ARGUMENTS

Favorable reconsideration of this application, in view of the present amendment and in light of the following discussion, is respectfully requested.

Claims 15-23, 26, and 28-30 are pending. In the present amendment, Claims 15-23, 26, 28, and 29 are currently amended, Claims 14, 24, 25, and 27 are canceled without prejudice or disclaimer, and new Claim 30 is added. Support for the present amendment can be found in the original specification, for example, at page 5, line 14 to page 6, line 13, at page 6, line 24 to page 7, line 5, and in Figures 2A-2F.

In the outstanding Office Action, Claims 14-22 and 27-29 were rejected under 35 U.S.C. § 102(b) as anticipated by Green (U.S. Patent No. 5,559,703); and Claims 23-26 were rejected under 35 U.S.C. § 103(a) as unpatentable over Green in view of Hennes et al. (U.S. Patent No. 6,361,289, hereinafter “Hennes”).

Turning now to the rejections under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a), Applicants respectfully request reconsideration of these rejections and traverse these rejections, as discussed below.

Initially, it is noted that independent Claim 14 is hereby canceled. Further, Claims 15-18, which previously depended on Claim 14, are amended to depend on independent Claim 19. Claim 19 is hereby amended to include the subject matter from Claims 24 and 25. Thus, Claim 19 recites that “the teeth in mesh have at all times at least one primary bearing point by which the driving gear moves the driven gear, and at least one secondary contact point. Further, the first transition point of one of the teeth in mesh is successively a primary bearing point and a secondary contact point in the course of meshing.

In the exemplary embodiment shown in Figures 2A-2F, the primary bearing points are represented by double circles and single circles represent the secondary contact points. In Figure 2A, the first transition point 4 of the gear including tooth 1b is the primary bearing

point and, in Figure 2B, the same first transition point is the secondary contact point. Thus, the first transition point 4 of tooth 1b is successively the primary bearing point and the secondary contact point before the tooth 1b goes out of mesh in Figure 2D. It is respectfully submitted that the cited references do not disclose or suggest every features recited in independent Claim 19.

Green describes a rotary blower including revolvers E that are each secured to driving-shafts B.¹ Each of the revolvers E includes two enlarged portions.² The Office Action equates the short segmental extensions b of the revolvers E with the claimed first transition point. Green further describes that when the revolvers E are rotated, “the rear or inner end of one segmental extension c will follow along on the outer surface of one of the segmental extensions c on the opposite revolver until the next following similar parts of each revolver come into play.”³

However, it is respectfully submitted that Green does not disclose or suggest “the first transition point of one of the teeth in mesh is successively the primary bearing point and the secondary contact point in the course of meshing,” as recited in amended Claim 19.

Instead, as discussed above, the revolvers E described in Green are each driven by a drive-shaft, and thus do not have the claimed primary bearing point. Further, Green describes that the rear end of one segmental extension c, which may include the short segmental extension b, will slide along the opposite revolver E until it is no longer in contact with that opposite revolver E. Thus, even assuming that the short segmental extension b is in contact with the opposite extension c, this point would be the primary bearing point, and would not be a secondary contact point since the point b will separate from the point c on the opposite revolver E before another point of contact is made. Thus, Green does not disclose or suggest

¹ See Green, at page 1, lines 88-102 and in Figures 1 and 2.

² See Green, at page 1, lines 88-96 and in Figures 1 and 2.

³ See Green, at page 2, lines 22-33 and in Figures 1 and 2.

that one tooth includes a transition 20 that is successively the primary bearing point and the secondary contact point.

Therefore, Green does not disclose or suggest every feature recited in independent Claim 19. Thus, it is respectfully requested that the rejection of Claim 19, and all claims dependent thereon, be withdrawn.

The Office Action relied on Green in view of Hennes to reject Claims 24 and 25. Specifically, the Office Action cites column 2, lines 37-41 and Figure 7 of Hennes as describing that the teeth in mesh have at all times at least one primary bearing point and one secondary contact point and that a given active point of one tooth is successively a primary bearing point and a secondary contact point in the course of meshing.

It is noted that Claim 19 is hereby amended to clarify that the primary bearing point is the point by which the driving gear moves the driven gear.

Hennes describes a pump 10 including a driven gear 42 and a driving gear 44.⁴ Further, Hennes describes that, when viewed along a surface line 67, at least two contact points 68 and 70 between the helical gears are present.⁵ However, Hennes is silent with regards to *one of these* contact points 68 and 70 being successively the primary bearing point and then the secondary contact point in the course of meshing.

Further, Hennes describes that, upon meshing, the tip 72 of a tooth almost completely fills a region around the root 67 of the tooth.⁶ However, Hennes does not disclose or suggest that the exact same transition point of the tooth is both the driving point and then the secondary contact point. Therefore, Hennes does not cure the above-noted deficiencies of Green.

Thus, it is respectfully submitted that the cited combination of Green in view of Hennes does not disclose or suggest every feature recited in independent Claim 19.

⁴ See Hennes, at column 7, lines 1-5 and 62-67 and in Figure 7.

⁵ See Hennes, at column 8, lines 4-9 and in Figures 4 and 6.

⁶ See Hennes, at column 8, lines 10-17 and in Figure 7.

Accordingly, it is respectfully requested that the rejection based on Green in view of Hennes be withdrawn.

New Claim 30 is added by the present amendment. Support for new Claim 30 can be found in the original specification, for example, at page 5, line 14 to page 6, line 13 and in Figures 2A-2F. Thus, it is respectfully submitted that no new matter is added. As new Claim 30 depends of Claim 19, it is respectfully submitted that new Claim 30 patentably defines over the cited references for at least the reasons discussed above with respect to Claim 19.

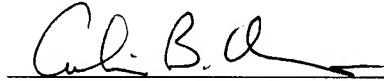
Further, new Claim 30 recites that “when the one of the teeth in mesh is successively the secondary contact point, the primary contact point of the teeth in mesh is on a next tooth downstream in a direction of rotation of the pair of gears, and after the primary contact point is on the next tooth, the primary contact point is transferred back to the one of the teeth in mesh that is upstream from the next tooth before the next tooth is out of mesh.” As can be seen in exemplary embodiment shown in Figures 2A-2C, the primary contact point in Figure 2A is on tooth 1b, in Figure 2B it is transferred to downstream tooth 1c, and then in Figure 2C is transferred back to tooth 1b before tooth 1b is out of mesh.

As discussed above, the point b is Green is continuously in contact and then is out of mesh. Thus, the primary contact point in Green is never transferred to a downstream tooth. Hennes is silent with regard to the primary contact tooth being transferred to a downstream tooth. Further, Hennes does not disclose or suggest that such a primary contact tooth would also be transferred back to the upstream tooth before the tooth is out of mesh. Therefore, it is respectfully submitted that new Claim 30 patentably defines over the cited references.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application and the present application is believed to be in condition for formal allowance. A Notice of Allowance is earnestly solicited.

Respectfully submitted,

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